

San Diego October 27, 2018



Cancer Research Institute

WELCOME





Special thanks



SPECIAL THANKS To our San Diego partners







Our Sponsors





This event is made possible with generous support from:



Bristol-Myers Squibb











REGENERON

SANOFI GENZYME 🗳









Our Educational Partners



Thank you to those who helped promote the summit

- Addario Lung Cancer Foundation
- American Cancer Society
- But Doctor I Hate Pink (Ann Silberman)
- Cancer Support Community
- CancerCare
- Colorectal Cancer Alliance
- Fight Colorectal Cancer
- FORCE

- Imerman Angels
- Leukemia & Lymphoma Society
- LUNGevity Foundation
- Let Life Happen (Barbara Jacoby)
- Patient Empowerment Network
- SHARE
- UC San Diego Moores Cancer Center
- Us TOO
- Young Survival Coalition

Speakers



Scientific Experts

Ezra Cohen, M.D.

Moores Cancer Center at UC San Diego Health

Aaron M. Miller, M.D., Ph.D.

Moores Cancer Center at UC San Diego Health

Sandip P. Patel, M.D.

Moores Cancer Center at UC San Diego Health

Rebecca A. Shatsky, M.D.

Moores Cancer Center at UC San Diego Health

Patient Experts

Dan Engel

Melanoma

Kristen Kleinhofer

Acute Lymphoblastic Leukemia (ALL)

Rikki Rockett

Oral Cancer

Rebecca S.

Breast Cancer



Schedule of Events



9:00 am	Registration and networking	1:00 pm	LEARN ABOUT CLINICAL TRIALS Brian Brewer		
10:00 am	Program commences	1:15 pm	IMMUNOTHERAPY PATIENT PANEL		
	WEI 00145		Moderator		
	WELCOME Brian Brewer		Brian Brewer		
			Panelists		
10:15 am	HEAR FROM THE EXPERTS		Dan Engel		
	Presentation: Immunotherapy Basics		Rikki Rockett		
	Ezra Cohen, M.D.		Rebecca S.		
10:30 am	Panel: Research Updates	2:00 pm	Transition Break		
	Moderator	2.00 pm	Harisidon break		
	Ezra Cohen, M.D.	2:15 pm	BREAKOUT SESSIONS		
	Panelists Aaron M, Miller, M.D., Ph.D.		Your choice of a moderated, deeper-dive Q&A with our experts		
	Sandip P. Patel, M.D. Rebecca A. Shatsky, M.D.		General Immunotherapy	Breast Cancer	
	Nebecca A. Silabky, M.b.		Ezra Cohen, M.D.	Rebecca A. Shatsky, M.D.	
11:30 am	PATIENT PERSPECTIVE		Lung Cancer	Gastrointestinal Cancers	
	Choose Hope, a message from		Sandip P. Patel, M.D.	Aaron M. Miller, M.D., Ph.D.	
	Kristin Kleinhofer, leukemia survivor	·			
		3:15 pm	Program closes		
12:00 pm	Lunch and networking		U7.05-5 (National Contract And	Can billion but our	
		9:00 am -	CLINICAL TRIAL NAVIGATOR APPOINTMENTS		
		4:00 pm		all day. If you didn't pre-register, but you	
			are interested in scheduling an appointment, please visit the Cl Trial Navigator desk for more information.		
			mat Navigator desk for more	e information.	



You will receive two emails after the summit:

- 1. A survey to share your feedback on the summit as well as insights into future programming.
- 2. **Information** from the summit day, including this presentation and instructions on how to use our <u>Clinical Trial Finder service</u>.



Immunotherapy 101





Ezra Cohen, M.D., F.R.C.P.S.C., F.A.S.C.O.

Professor of Medicine

Associate Director, Translational Science
Co-Director, San Diego Center for Precision Immunotherapy
Moores Cancer Center

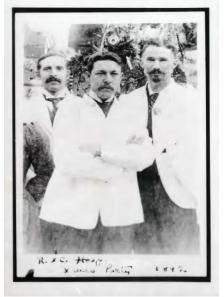
University of California, San Diego School of Medicine



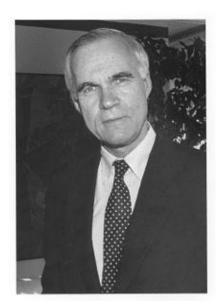


Origin & Revival of Immunotherapy









1890s: William B. Coley

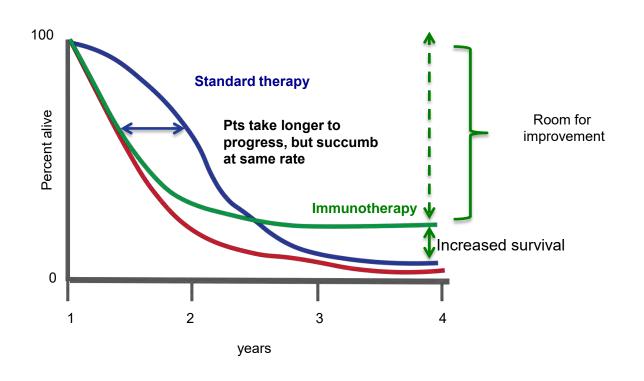
1900s: Paul Ehrlich

1960s: Lloyd J. Old



Immunotherapy: A Potential Cure?







The Immune System At a Glance



Nose

Hairs and mucus trap foreign particles and prevent them from entering the body

Thymus

Small organ located just behind the breastbone where T cells mature (the "T" is for thymus)

Bone marrow

Tissue in the center of bones that is responsible for making blood cells, including white blood cells

White blood cells

White blood cells—including macrophages, dendritic cells, and lymphocytes—are the cellular actors of immunity

Tonsils

Structures at the back of the throat that sample bacteria and viruses that enter the body through the mouth or nose

Lymph nodes

Small, bean-shaped structures located throughout the body that filter lymph fluid; where immune cells are alerted to the presence of pathogens or cancer

Spleen

Fist-sized organ located in the upper-left part of the abdomen, containing white blood cells that fight infection and cancer

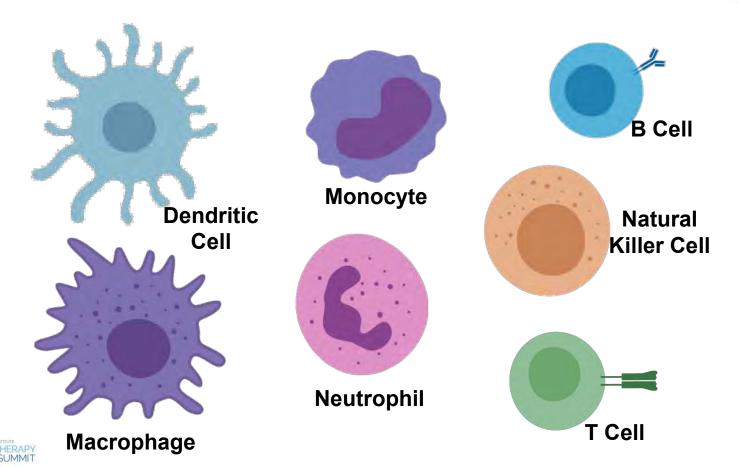
Lymphatic vessels

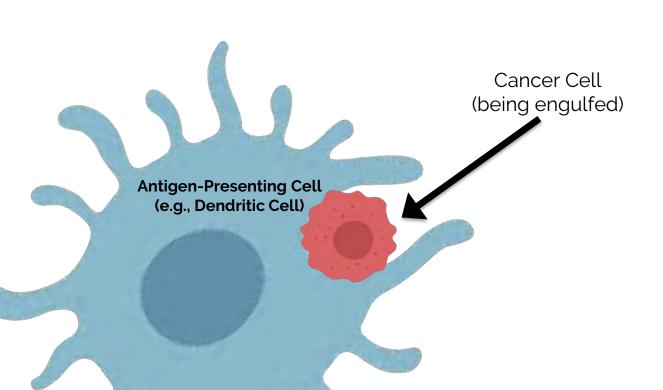
Thin-walled tubes that collect and transport lymph fluid throughout body



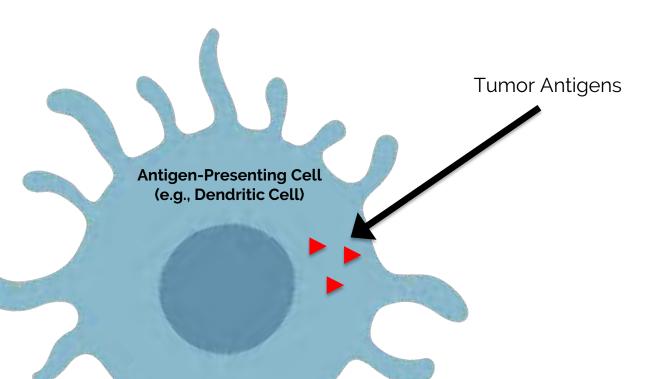
The Cells of the Immune System



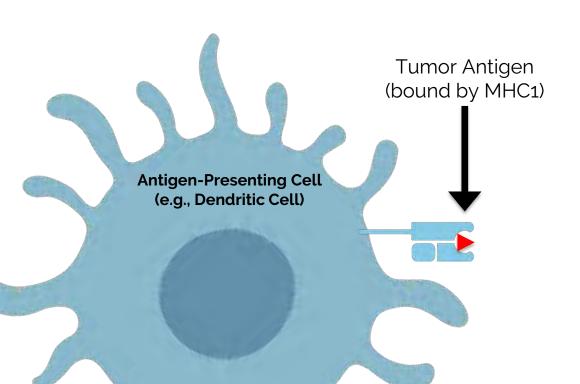




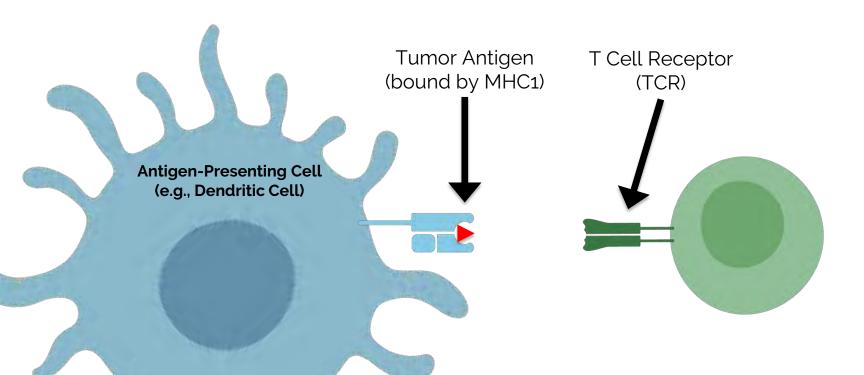




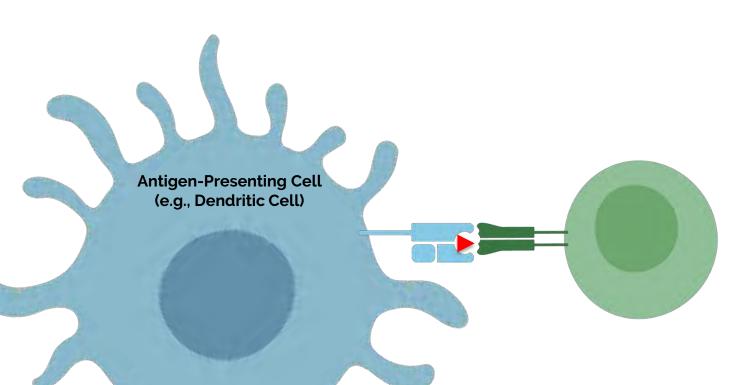




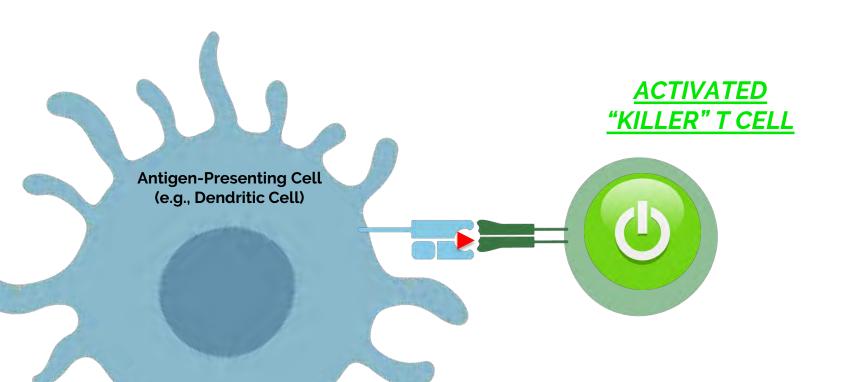




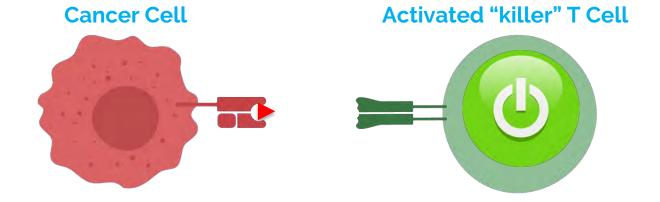






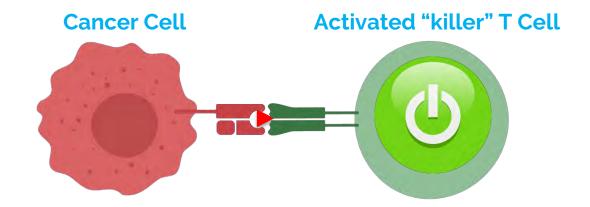






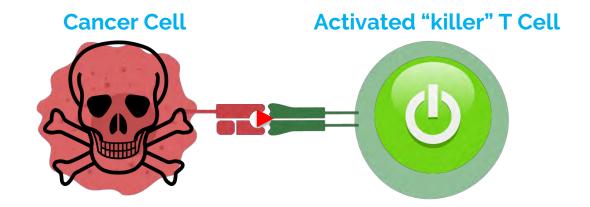












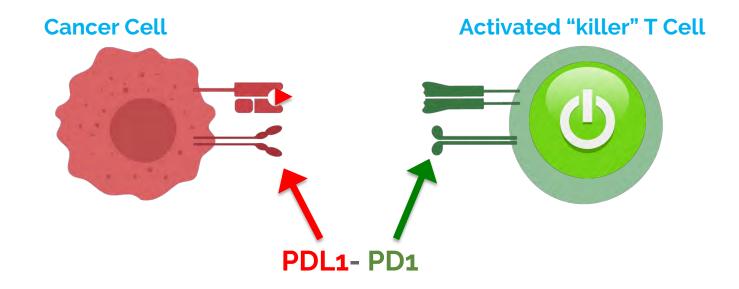
CANCER CELL ELIMINATED!



Immune Checkpoints Can Suppress Immune Responses





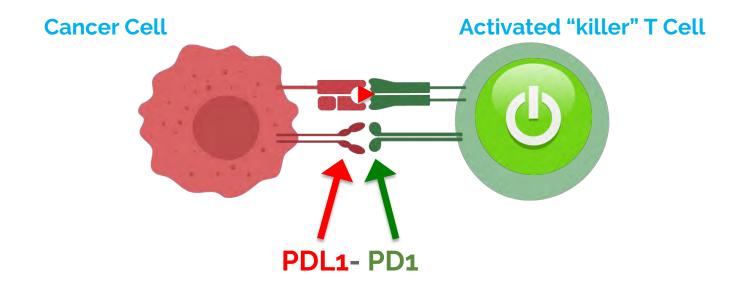




Immune Checkpoints Can Suppress Immune Responses





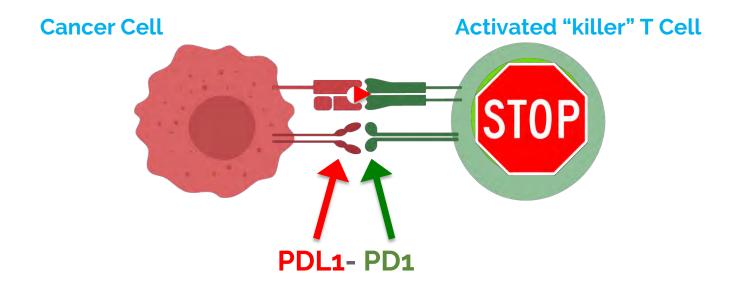




Immune Checkpoints Can Suppress Immune Responses

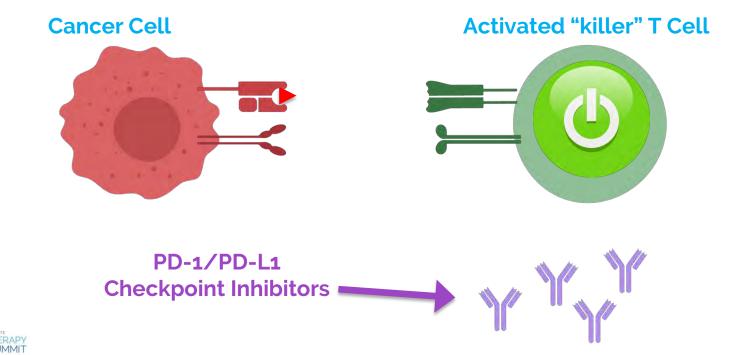






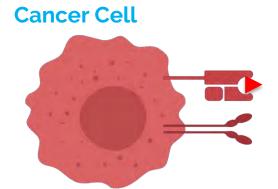


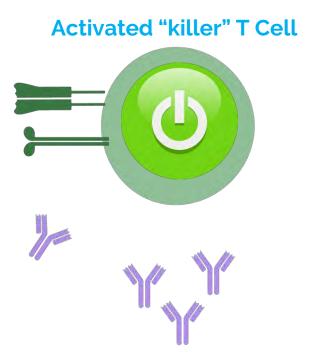










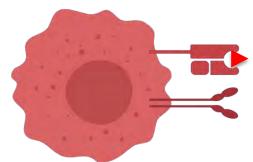




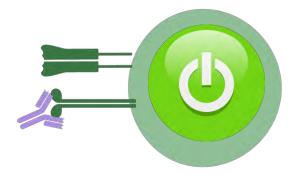


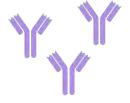








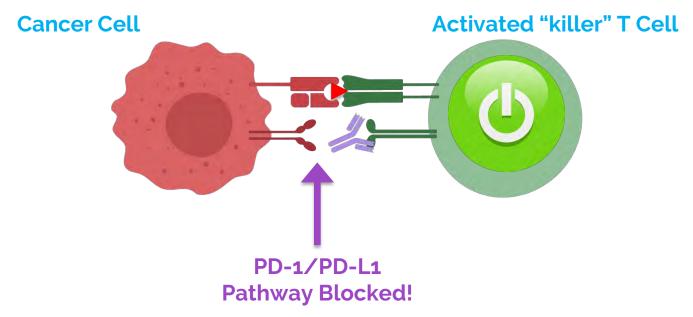








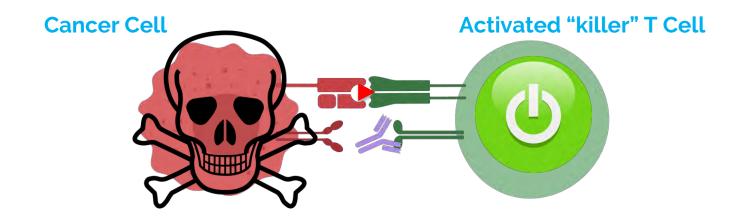












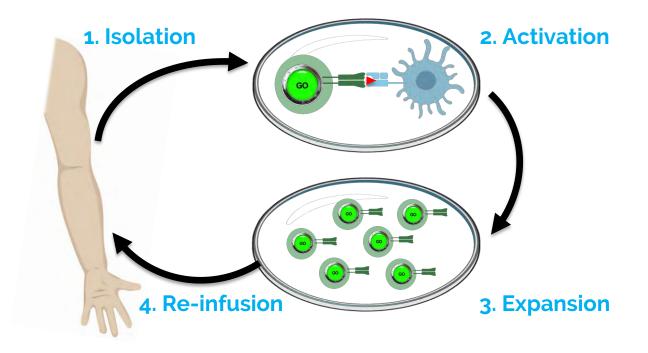
CANCER CELL ELIMINATED!



Adoptive T Cell Immunotherapy

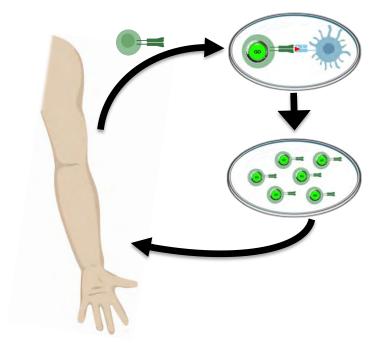


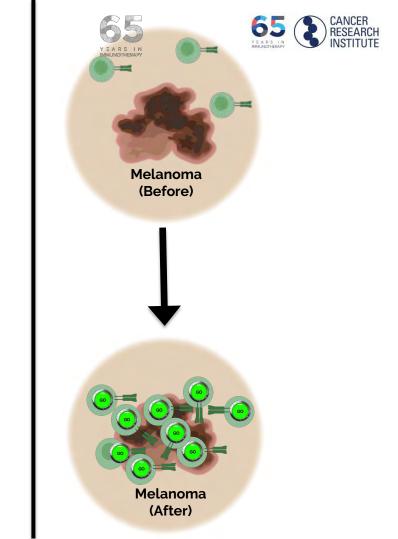






Adoptive T Cells In Action (Against Melanoma)



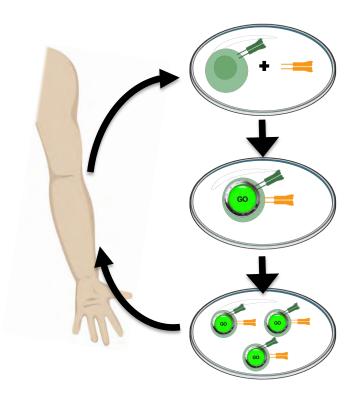




T Cell Receptor Engineering







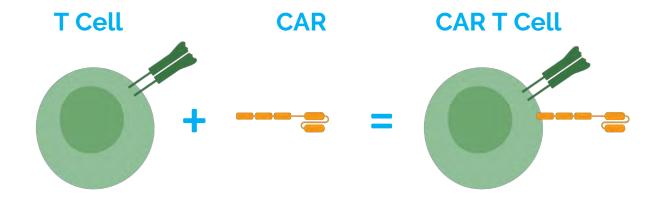
Equip T cells with new, cancer-targeting TCR



CAR T Cell Immunotherapy (Chimeric Antigen Receptor)





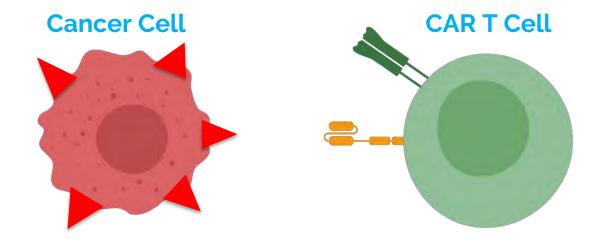




CAR T Cell Immunotherapy (Chimeric Antigen Receptor)







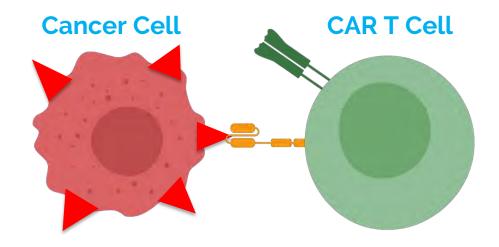
CARs enable MHC-independent targeting & killing!



CAR T Cell Immunotherapy (Chimeric Antigen Receptor)







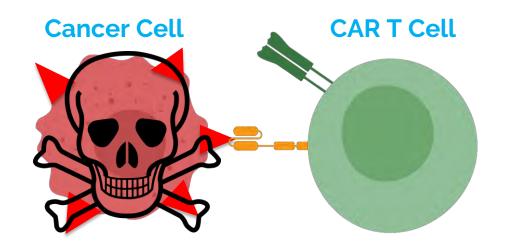
CARs enable MHC-independent targeting & killing!



CAR T Cell Immunotherapy (Chimeric Antigen Receptor)







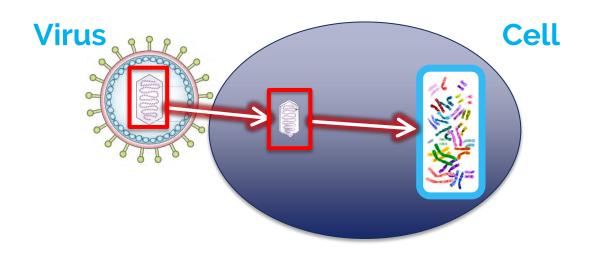
CARs enable MHC-independent targeting & killing!



Oncolytic Virus Immunotherapy







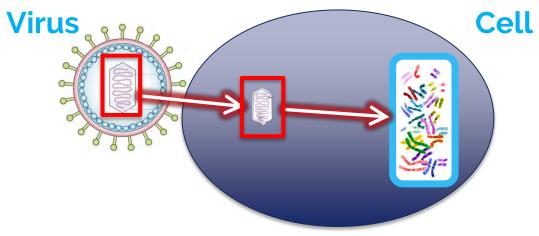
- Viruses can alter our cells' DNA, by inserting their own genetic material
- Impaired defenses make tumor cells more susceptible to infection



Oncolytic Virus Immunotherapy







AFTER INJECTION:

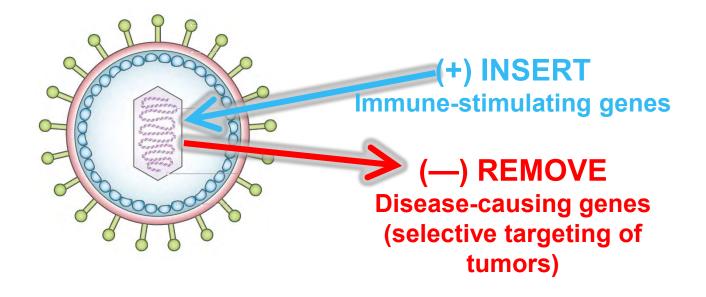
- 1) Viruses cause tumor cells to "burst" & release antigens
- 2) Immune cells uptake & present tumor antigens
- 3) Stimulates adaptive, and potentially systemic, immune responses



Reprogramming Oncolytic Viruses To Enhance Anti-Tumor Activity



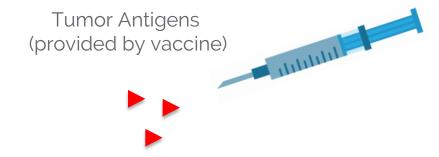






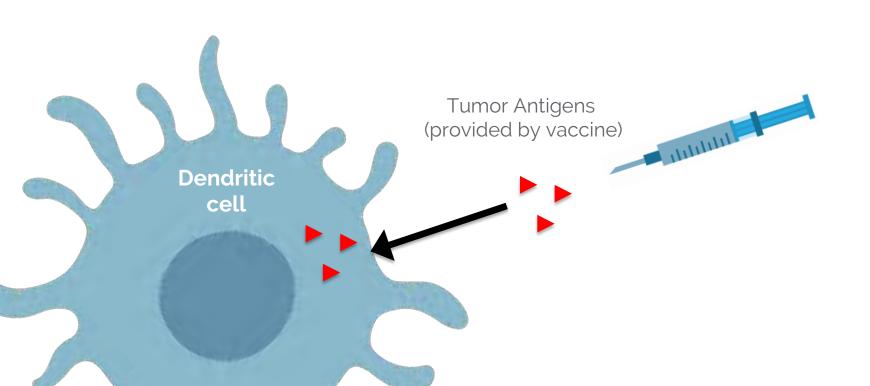




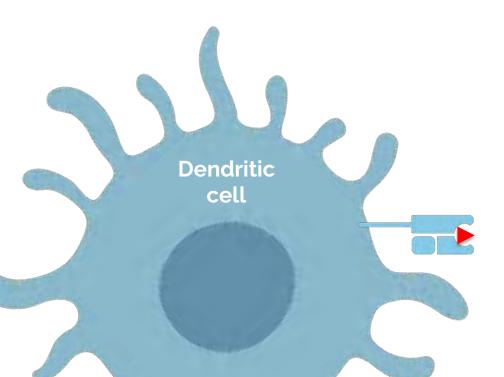




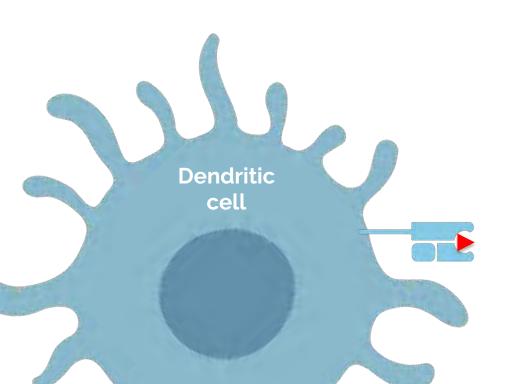


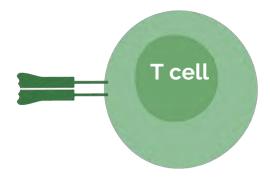




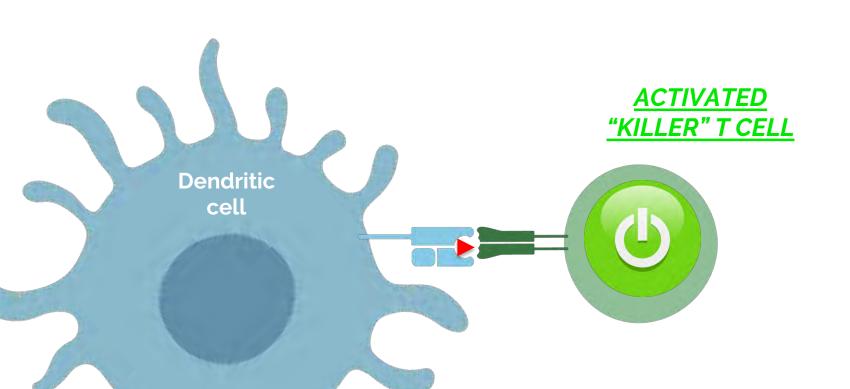






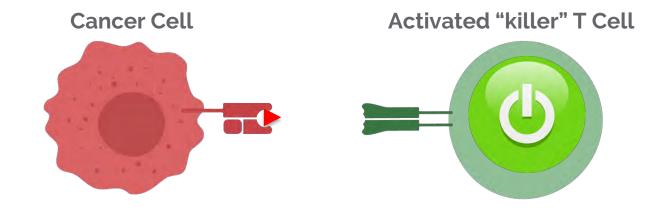






Vaccine-Induced Elimination of Cancer Cells

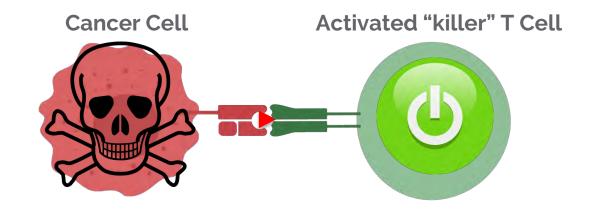






Vaccine-Induced Elimination of Cancer Cells







Personalized Neoantigen Vaccine Trial







Challenges in Cancer Immunotherapy





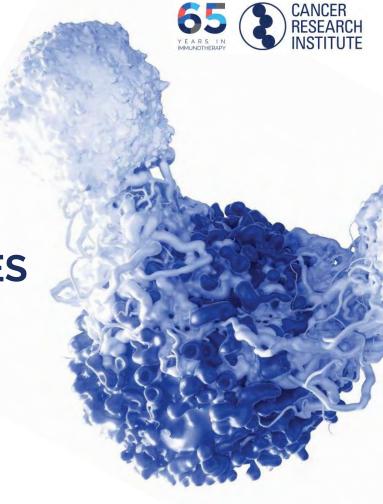


- Discovering and validating new biomarkers to help doctors predict which patients will respond to which immunotherapies
- Determining the best way to combine immunotherapies with each other as well other treatments to extend immunotherapy's benefits for more patients
- Learning how to decouple side effects of immunotherapy from benefit



Panel Discussion

LATEST RESEARCH UPDATES





Scientific Panel



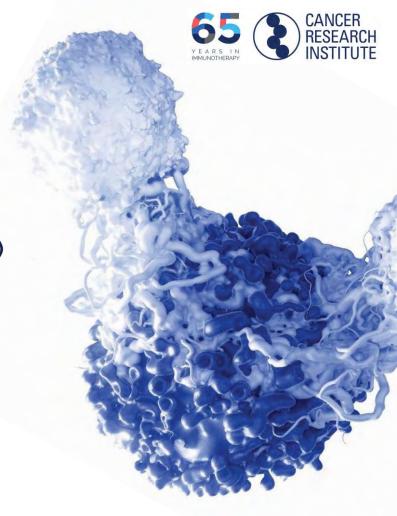
Moderator	Panel
Ezra Cohen, M.D.	Aaron M. Miller, M.D., Ph.D. Gastrointestinal Cancers
	Sandip P. Patel, M.D. Lung Cancer
	Rebecca A. Shatsky, M.D. Breast Cancer





Surviving Acute Lymphoblastic Leukemia (ALL)

PATIENT PERSPECTIVE







How did I get to Immunotherapy?



My Journey of HOPE







2010







August



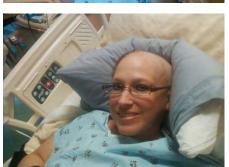




2010 - 2012

















Enjoying Life....











Now What to Do?

February & March 2014

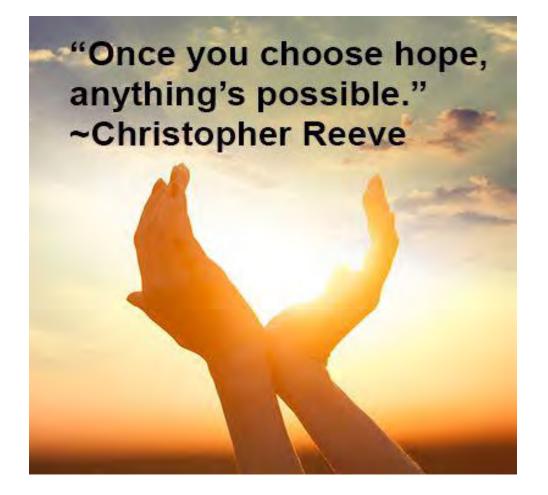
















Now What to Do?



April 2014















Immunotherapy Eligibility



May 2014















2014



September & October

















Phase I/II Study of Immunotherapy for advanced CD19+ CLL, ALL, and NHL with defined subsets of autologous T cells engineered to express a CD19 specific chimeric antigen receptor













Receive



November 19, 2014 Immunotherapy Treatment

















CANCER RESEARCH INSTITUTE

Reaction

- Spiked Fever
- Hospitalization
- Cytokine Release
 Syndrome
- Re-hospitalization



- High Fever
- Body Chills
- Muscle Aches
- Night Sweats
- Low Blood Pressure
- Mental Fogginess



Two Weeks Later.....





















27 out of 29 (93%) A.L.L. patients Experience Sustained Remissions





Protocol 2603



Multi-center, Open-label Randomized Study of Single or Double Myeloablative Cord Blood Transplantation with or without infusion of off-the-shelf ex vivo expanded cyropreserved cord blood progenitor cells in patients with hematologic malignancies









Receive

February 4, 2015

Transplant Journey Begins...

















Result



- Engraftment
- Naive Immune
 System
- Release after 100 days
- Return to CA

















Seattle Cancer Care Alliance Fred Hutch - Seattle Children's - UW Medicine





















Bucket List Continues...













Paying it Forward:

CANCER RESEARCH INSTITUTE

Patient Advocacy & Navigation



























Takes a Village......



























How to Make It Through the **Dark Times?**



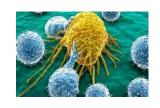


- Choose How We Want to Live Each Day
- Take It Day by Day, Live in the Present
- Gratitude for Life's Blessings
- Positive Attitude
- Acceptance
- Knowledge is Power
- Close Partnership w/ Medical Team

- Strong Support System. Stronger Together
- Inner Strength & Resilience to Push Forward
- Faith, Spiritual Life
- Humor
- Cancer Resources
- Choosing



Immunotherapy Treatments Offer HOPE



- Clinical Trials Are Where Revolutionary Breakthroughs Begin
- Standard Treatments Exhausted or No Longer Work
- Possible Gift of More Time
- Furthering Research to Help Future Cancer Patients

- Less Toxicity & More Targeted Therapy
- Changing the Cancer Treatment Landscape
- Profound Impact on What Cancer Care Will Mean in Coming Years
- Exciting Time as More Discoveries Are Made and Perfected





IMAGINE the Day.....

Cancer will not be a Word we are afraid of. No more harsh side effects, no more relapses, just our body's immune system being led to harness its wisdom to conquer Cancer through Immunotherapy.

Just Imagine.

"Once you Choose Hope, Anything is Possible."





Lunch and Networking

Level 1 | Room 141/143/145





Brian Brewer

Cancer Research Institute

LEARN ABOUT CLINICAL TRIALS





What Are Clinical Trials?

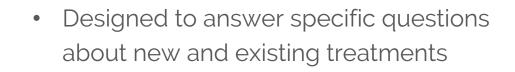














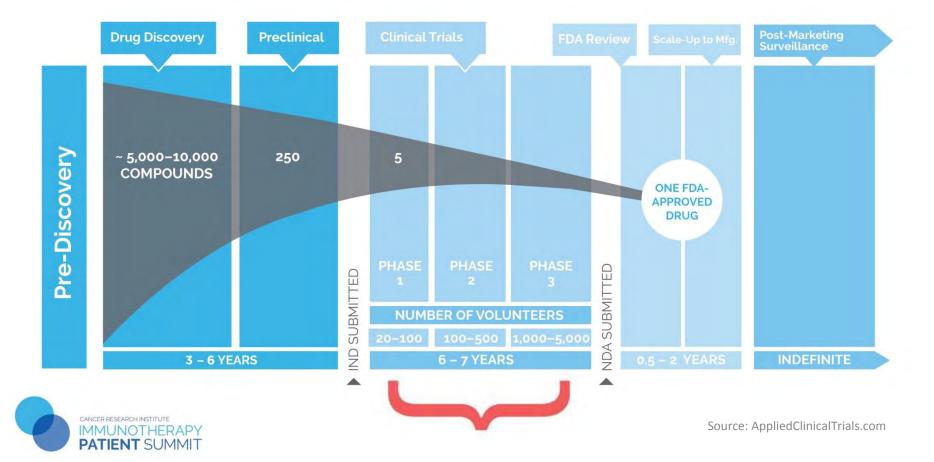
 Aim to improve treatments and the quality of life for people with disease



Getting from Discovery to Approval







What Are Clinical Trial Phases?









Is the treatment safe?

Does it work?

Does it work better?

Purpose:

- First study in humans
- Find best dose, delivery method, and schedule
- Monitor for side effects
- Determine safety

Number of people: 20-100

Purpose:

- Look for effect on specific type(s) of cancer
- Continue monitoring for side effects and safety

Number of people: 100-500

Purpose:

- Compare new treatment

 (or new use of a treatment)
 with current standard
 treatment
- Determine risk vs. benefit

Number of people: 1,000-5k+

Pros and Cons of Clinical Trials



Potential Advantages	Potential Disadvantages
Access to best possible care	Unknown side effects or risks
Receiving new drugs before they're widely available	Unknown benefits—drugs may not work as intended
Close monitoring by medical team	Not all patients may benefit
Chance to play active role in healthcare and research	Frequent tests and clinic visits
Help future generations	Possible need to travel to trial sites

Patient Resource, "Understanding Clinical Trials: A Guide for Patients and Their Families"



Questions to Ask Before Volunteering



- Why is this trial being done?
- Why is it believed that the treatment being studied may be better than the standard treatment?
- What are my other options (standard treatments, other trials)?
- How did patients do in any previous studies of this treatment?
- How will the doctor know if treatment is working?
- How long will the trial last?



Questions to Ask Before Volunteering



- Can I continue to receive this treatment after the trial ends?
- What kinds of procedures or tests are involved?
- What impact with the trial have on my daily life?
- Will I have to travel for treatment? Will I be compensated?
- How often will I need to travel to receive treatment?
- Will I be hospitalized as part of the trial?
- What costs (if any) will be my responsibility to pay?



Getting into a Clinical Trial Isn't Always a Given



Trials are designed to ask specific questions, and must adhere strictly to entry criteria to ensure data is accurate and meaningful.

This also helps ensure patients who could be made worse by treatment are not exposed to the risk.

Common criteria include:

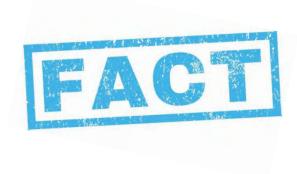
- cancer type or stage
- treatment history
- genetic factors
- age
- medical history
- current health status







I might only get placebo ("sugar pill") instead of treatment.



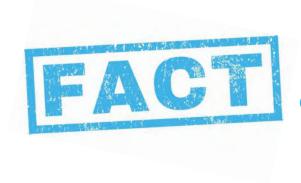
Placebos are rarely used and never given in the absence of some form of treatment.







Trials are only for people who have run out of treatment options (a "last resort").



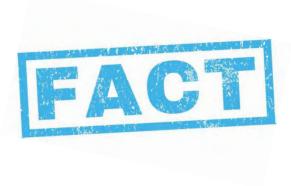
Clinical trials are designed for people with cancer of all types and stages.







I need to travel to a large hospital or cancer center to participate in a clinical trial.



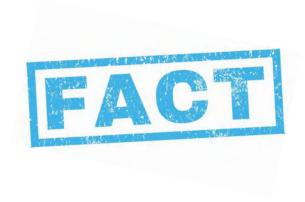
Trials take place at local hospitals, cancer centers, and doctors' offices in all parts of the country, in both urban and rural areas.







My health insurance doesn't cover the cost of care in a clinical trial.



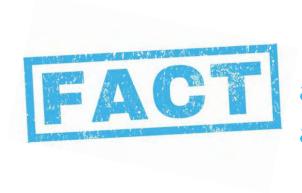
Doctor visits, hospital stays, and certain testing procedures may be covered by insurance. Research costs are typically covered by the trial sponsor.







Signing a consent form "locks" me into staying in a trial.



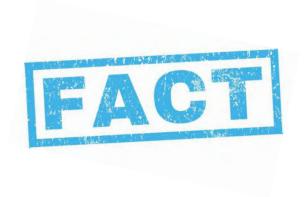
Fact: You are free to change your mind for any reason about participating in a trial anytime before or during a trial.







I will be made to feel like a "guinea pig" experiment.



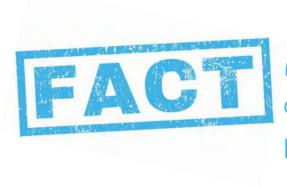
Fact: The overwhelming majority of trial participants say they were treated with dignity and respect, and report having had a positive experience in a trial.







Clinical trials aren't safe.



Fact: Safeguards including an Institutional Review Board, Data and Safety Monitoring Board, and an ongoing informed consent process ensure patients' rights and safety are protected.



A Word About Informed Consent



Informed consent = having all the facts before and during a trial

- Study purpose
- Length of time of the study
- Predictable risks
- Possible benefits
- Expectations
- Patient's rights

- Treatment alternatives
- Patient health monitoring
- Safeguards in place
- How to withdraw from study

Be bold in asking for details. It's YOUR treatment plan.



How Can I Find a Clinical Trial?

Y E A R S I N IMMUNOTHERAPY



- Ask your doctor
- Ask another doctor if necessary...
- Contact a patient advocacy organization
 - Seek assistance from a clinical trial navigator, if offered
 - CRI Clinical Trial Finder: 1 (855) 216-0127
- Search online
 - https://www.cancerresearch.org/patients/clinical-trials
 - https://clinicaltrials.gov/

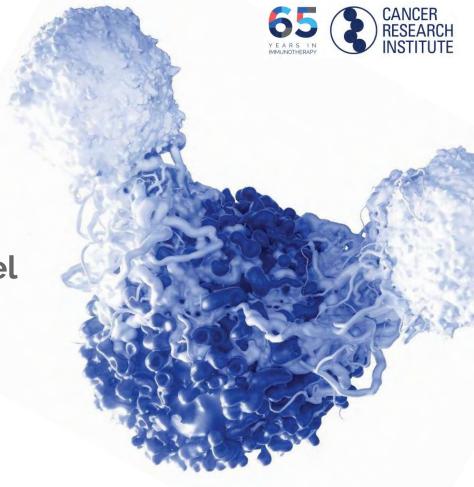






Panel Discussion

Immunotherapy Patient Panel

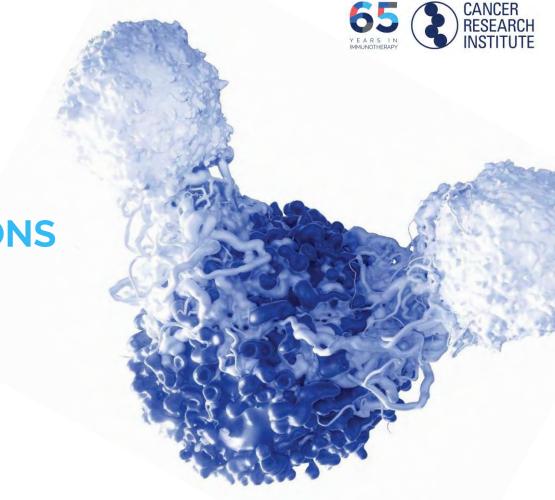




Patient Panel



Moderator	Panel
Brian Brewer	Dan Engel Melanoma
	Kristen Kleinhofer Acute Lymphoblastic Leukemia (ALL)
	Rikki Rockett Oral Cancer
	Rebecca S. Breast Cancer



BREAKOUT SESSIONS



Breakout Session Rooms



General Immunotherapy	Level 1
Ezra Cohen, M.D., Ph.D.	Auditorium
Breast Cancer	Level 1
Rebecca A. Shatsky, M.D.	Room 141/143/145
Lung Cancer	Level 2
Sandip P. Patel, M.D.	Rooms 215
Gastrointestinal Cancers	Level 2
Aaron M. Miller, M.D., Ph.D.	Room 204



Our Sponsors





This event is made possible with generous support from:



Bristol-Myers Squibb























Our Educational Partners



Thank you to those who helped promote the summit

- Addario Lung Cancer Foundation
- American Cancer Society
- But Doctor I Hate Pink (Ann Silberman)
- Cancer Support Community
- CancerCare
- Colorectal Cancer Alliance
- Fight Colorectal Cancer
- FORCE

- Imerman Angels
- Leukemia & Lymphoma Society
- LUNGevity Foundation
- Let Life Happen (Barbara Jacoby)
- Patient Empowerment Network
- SHARE
- UC San Diego Moores Cancer Center
- Us TOO
- Young Survival Coalition



You will receive two emails after the summit:

- 1. A survey to share your feedback on the summit as well as insights into future programming.
- 2. **Information** from the Summit day, including this presentation and instructions on how to use our <u>Clinical Trial Finder service</u>.





San Diego October 27, 2018